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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/470,890	12/22/1999	PATRICK D. SMITH	PD05924AM	6738
43471	7590	07/19/2005		EXAMINER

GENERAL INSTRUMENT CORPORATION DBA THE CONNECTED  
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ART UNIT	PAPER NUMBER
	2631

DATE MAILED: 07/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/470,890	SMITH ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Kevin M. Burd	2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 12 July 2005.

2a)  This action is FINAL.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-5,7-33,35,36,38 and 39 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 1-5 and 7-28 is/are allowed.

6)  Claim(s) 35,36,38 and 39 is/are rejected.

7)  Claim(s) 29-33 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_

5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_

1. This office action, in response to the request for continued examination and the amendment filed 7/5/2005, is a non-final office action.

***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/12/2005 has been entered.

***Response to Arguments***

3. Applicant's arguments, see pages 15 and 16 of the remarks filed 7/5/2005, with respect to claims 1-5 and 7-33 have been fully considered and are persuasive. The previous rejections of these claims have been withdrawn.

4. Applicant's arguments, see page 16 of the remarks filed 7/5/2005, with respect to the rejections of claims 35 and 38 under 35 USC 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejection are made in view of Fette et al (US 6,560,445).

***Claim Objections***

5. Claims 29-33, 38 and 39 are objected to. Applicant claims data structures in claims 29 and 38. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. MPEP 2106.

The examiner suggests amending claims 29 and 38 to state "A computer program embodied on a computer readable storage medium, executing instructions to perform a method for identifying an impairment of a received digitally modulated signal, the method comprising, ..." It is believed this amendment would remove any non-statutory functional descriptive material problems with these claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 35 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Fette et al (US 6,560,445).

Regarding claims 35 and 38, Fette discloses a method for detecting types of impairments in a system communicating a digitally modulated signal (column 8, lines 20-38). Data is derived from the received signal. The signal is correlated and this correlation provides evidence of the signal to noise ratio (SNR) of each coefficient and its ability to convey information (column 8, lines 27-32). This is the ratio analysis. This process determines how various forms of interference degrade or offset the coefficients. Certain types of interference may be detected and eliminated by recognizing that a certain coefficient was always modulated to be zero and that, by receiving as non-zero, the location of interference may be recovered in the spectrum and its artifact removed (column 8, lines 34-38). In this case, the likelihood that the plurality of impairments is affecting the digitally modulated signal is high.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 36 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fette et al (US 6,560,445) in view of Hewitt (US 6,526,538).

Regarding claims 36 and 39, Fette discloses a method for detecting types of impairments stated above in paragraph 6. Fette does not disclose providing a three dimensional presentation of the distribution of the soft decision data over time. Hewitt discloses an encoding scheme with three-dimensional coding schemes or higher (column 6, lines 36-44). To display this data, all three dimensions (x, y and z) must be included (column 4, lines 24-37). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to utilize three-dimensional encoding of the data streams in the adaptive rate modulator. This would allow more information to be transmitted prior to the removal of the impairment types and more data to be recovered at the receiver.

### ***Allowable Subject Matter***

Claims 1-5 and 7-28 are allowed.

### ***Conclusion***

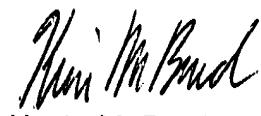
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Kevin M. Burd  
7/13/2005

**KEVIN BURD**  
**PRIMARY EXAMINER**